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PTO/SB/05 (12/97)

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# UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	COMP:0132/van P00-3180	Total Pages	50
First Named Inventor or Application Identifier			
Arthur K. Farnsworth			
Express Mail Label No.	EL 652 334 310 US		

## APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO:

Assistant Commissioner for Patents

Box Patent Application  
Washington, DC 20231

- ☒ Fee Transmittal Form  
(Submit an original, and a duplicate for fee processing)
- ☒ Specification **Total Pages 25**  
(preferred arrangement set forth below)
  - Descriptive
  - Cross References to Related Application
  - Statement Regarding Fed sponsored R & D
  - Reference to Microfiche Appendix
  - Background of the Invention
  - Brief Summary of the Invention
  - Brief Description of the Drawings (if filed)
  - Detailed Description
  - Claim(s)
  - Abstract of the Disclosure

- ☐ Microfiche Computer Program (Appendix)
- Nucleotide and/or Amino Acid Sequence Submission  
(if applicable, all necessary)
  - ☐ Computer Readable Copy
  - ☐ Paper Copy (identical to computer copy)
  - ☐ Statement verifying identity of above copies

- ☒ Drawing(s) (35 USC 113) **Total Sheets 5**  
**Total Pages 15**

### 4. Oath or Declaration

- ☒ Newly executed (original or copy)
- ☐ Copy from a prior application (37CFR 1.63(d))  
(for continuation/divisional with Box 17 completed)  
(Note Box 5 below)
  - ☐ DELETION OF INVENTOR(S)  
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).

- ☐ Incorporation By Reference (useable if Box 4b is checked)  
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

## ACCOMPANYING APPLICATION PARTS

- ☒ Assignment Papers (cover sheet & document(s))
- ☐ 37 CFR 3.73(b) Statement ☒ Power of Attorney  
(where there is an assignee)
- ☐ English Translation Document (if applicable)
- ☐ Information Disclosure Statement (IDS)/PTO-1449
- ☐ Copies of IDS Citations
- ☐ Preliminary Amendment
- ☒ Return Receipt Postcard (MPEP 503)
- ☐ Small Entity ☐ Statement filed in prior application  
Statement(s) Status still proper and desired
- ☐ Certified Copy of Priority Document(s)  
(if foreign priority is claimed)
- ☐ Other

- 17 ☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No: \_\_\_\_/\_\_\_\_/\_\_\_\_

## 18. CORRESPONDENCE ADDRESS

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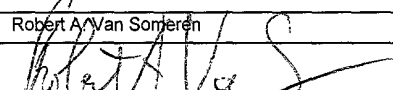
NAME	Robert A. Van Someren				
	Fletcher, Yoder & Van Someren				
ADDRESS	P.O. Box 692289				
CITY	Houston	STATE	Texas	ZIP CODE	77269-2289
COUNTRY	USA	TELEPHONE	(281) 970-4545	Fax	(281) 970-4503

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<b>FEE TRANSMITTAL</b>	<b>Complete if Known</b>	
	<b>Application Number</b>	Not Assigned
	<b>Filing Date</b>	Herewith
	<b>First Named Inventor</b>	Arthur K. Farnsworth
	<b>Group Art Unit</b>	Not Assigned
	<b>Examiner Name</b>	Not Assigned
<b>TOTAL AMOUNT OF PAYMENT</b>	<b>(\$)</b> 822.00	<b>Attorney Docket Number</b> COMP:0132/VAN/P00-3180

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<b>SUBMITTED BY</b>		<b>Complete (if applicable)</b>	
Typed or Printed Name	Robert A. Van Someren	Reg. Number	36,038
Signature		Date	November 21, 2000
		Deposit Acct User ID	COMP 0132/VAN P00-3180

U.S. Patent Application For

ACCESS PANEL LATCHING SYSTEM

By:

Arthur K. Farnsworth  
Houston, Texas

Peter W. Austin  
Spring, Texas

"EXPRESS MAIL" MAILING LABEL  
Number: EL 652 334 310 US  
Date of Deposit: November 21, 2000  
Pursuant to 37 C.F.R. § 1.10, I hereby certify that I am personally depositing this paper or fee with the U.S. Postal Service, "Express Mail Post Office to Addressee" service on the date indicated above in a sealed envelope (a) having the above-numbered Express Mail label and sufficient postage affixed, and (b) addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.  
Signature: Synda Howell  
Printed Name: Synda Howell

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## ACCESS PANEL LATCHING SYSTEM

### FIELD OF THE INVENTION

5           The present invention relates generally to a system and method for protecting components within an enclosure, and particularly to a system for accessing electronic components housed within a protective enclosure.

### BACKGROUND OF THE INVENTION

10           Many electronic devices are composed of electronic components electrically coupled together within a protective enclosure. For example, the central unit of a  
15   desktop computer system typically consists of a microprocessor, hard drive, RAM, and power supply housed within a sheet metal enclosure. The central unit is typically coupled to a monitor, keyboard, printer, and mouse.

20           Protective enclosures for housing electronic components come in a variety of shapes and sizes. However, typically, they consist of a chassis with a removable cover. A cover is typically secured to the chassis by a

number of screws. Occasionally, the components within the protective enclosure need to be accessed, either for repair or upgrade. To remove the cover and access the components, the screws securing the cover to the chassis must be removed. A tool, such as a screwdriver or drill, is needed to remove the screws from the enclosure. Additionally, installing and removing the screws consumes time, and the screws may be lost, adding additional time to the process.

Therefore, it would be advantageous to have a system that would allow access to the interior of a protective enclosure quickly, without the use of tools and producing no loose parts.

#### SUMMARY OF THE INVENTION

A protective assembly for a computer system is featured. The protective assembly includes a chassis, an access panel, a latch member and a catch member. The latch member is secured to the access panel. The catch member is movably secured to the chassis and is biased by a spring to a first position on the chassis to secure the latch member.

According to another aspect of the present invention,  
a first member securable to a second member to form a  
moveable securing mechanism for securing a latch member to  
a chassis is featured. The first member includes a first  
5 surface configured for sliding engagement with the latch  
member as the access panel is pivoted towards a closed  
position on the chassis. The first member also includes a  
second surface configured to restrict movement of the latch  
member when the access panel is disposed in the closed  
10 position on the chassis.

According to another aspect of the present invention,  
a method of securing an access panel to a chassis is  
provided. The access panel has a latch member and the  
15 chassis has a moveable catch member biased to a first  
position on the chassis. The method includes the step of  
pivoting a first end of the access panel towards a closed  
position on the chassis. The method also includes the step  
of displacing the moveable catch member from the first  
20 position with the latch member. The method further  
includes the step of disposing the access panel in the  
closed position on the chassis. The moveable catch member  
is no longer displaced by the latch member and is biased

back to the first position, thereby securing the latch member.

5

**BRIEF DESCRIPTION OF THE DRAWINGS**

The invention will hereafter be described with reference to the accompanying drawings, wherein like reference numerals denote like elements, and:

10

Figure 1 is a perspective view of a protective enclosure for a computer system, according to a preferred embodiment of the present invention;

15

Figure 2 is a perspective view of the protective enclosure of Figure 1 featuring an access panel in an open position;

20

Figure 3 is a cross-sectional view taken along line 3-3 of Figure 2;

Figure 3A is a cross-sectional view taken along line 3A-3A of Figure 3;

Figure 4 is a cross-sectional view similar to Figure 3, illustrating the operation of the access panel securing system during the closing of the access panel;

5        Figure 4A is a cross-sectional view of the area defined by line 4A-4A of Figure 4;

10        Figure 5 is a cross-sectional view similar to Figure 3, illustrating the operation of the access panel securing system once the access panel is closed;

15        Figure 6 is a cross-sectional view similar to Figure 3, illustrating the operation of the access panel securing system during the opening of the access panel;

Figure 6A is a cross-sectional view illustrating the operation of the leaf spring in opening the access panel;

20        Figure 7 is a cross-sectional view taken along line 7-7 of Figure 2;

Figure 7A is a cross-sectional view taken along line 7A-7A of Figure 7,



Figure 8 is a bottom elevational view of an access panel, according to a preferred embodiment of the present invention;

5        Figure 9 is an elevational view of a catch release, illustrating the side of the catch release facing an inner member of a catch mechanism, according to a preferred embodiment of the present invention;

10       Figure 10 is an elevational view of the catch release of Figure 9, illustrating the side of the catch release that is visible from the exterior of a protective enclosure;

15       Figure 11 is an elevational view of a portion of the exterior of a protective enclosure, according to a preferred embodiment of the present invention;;

20       Figure 12 is an elevational view of an inner member, illustrating the side of the inner member that faces the catch release, according to a preferred embodiment of the present invention;

Figure 13 is an elevational view of the inner member of Figure 12, illustrating the side of the inner member that faces the interior of an enclosure; and

5        Figure 14 is an alternative exemplary embodiment of a protective enclosure for a computer system.

**DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

10        Referring generally to Figure 1, a computer system enclosure 20 is featured. Enclosure 20 includes a chassis 22, a front bezel 24, a rear panel 26, an access panel 28, and two moveable catches 30 for securing access panel 28 to chassis 22. Each movable catch 30 is operated by a catch release 32 accessible from the exterior of chassis 22. In the illustrated embodiment, each moveable catch 30 is disposed on two sides 33 of chassis 22, towards rear panel 26. Each catch release 32 is disposed in a recess 34 in each side 33 so as to minimize the profile of catch release 32. In the illustrated embodiment, access panel 28 is released from chassis 22 by sliding both catch releases 32 towards rear panel 26.

Referring generally to Figure 2, chassis 22 is illustrated with access panel 28 in an open, or unsecured, position. The closed, or secured, position of panel 28 is shown in dashed lines. As best illustrated in Figure 8, access panel 28 includes two tabs 36 used to secure access panel 28 to chassis 22. Alternatively, access panel 28 may be configured with one tab, or more than two tabs.

Referring again to Figure 2, to secure access panel 28 to chassis 22 each tab 36 is seated under a lip 38 on the top rear portion of front bezel 24. Lip 38 and tabs 26 enable access panel 28 to be pivoted into the closed position. However, lip 38 prevents movement of tabs 36 when access panel 28 is in the closed position on chassis 28. Alternatively, the end of access panel 28 proximate front bezel 24 can be secured to chassis 22 by another mechanism, such as a hinge.

Figure 2 also illustrates latch 40 of access panel 28. Chassis 22 and access panel 28 are preferably formed of sheet metal with latch 40 being formed by a series of bending operations on access panel 28. However, latch 40 can also be formed separately. Latch 40 includes an angled

latch portion 42, a flat latch portion 44, and a connecting member 46.

Access panel 28 also includes two support rails 48 that extend along the sides of panel 28. As best illustrated in Figure 8, each support rail 48 includes a plurality of holes 50. A ground spring 52 is disposed between each hole 50 and the main cover portion 54 of access panel 28. Each rail 48 rests on a first bracket surface 56 and a second bracket surface 58 on each side 33 of chassis 22. First bracket 56 includes a plurality of ground tabs 60. Each ground tab 60 is configured for insertion through each hole 50 of access panel 28 so as to contact ground spring 52 and ground access panel 28 to chassis 22. Second bracket 58 is configured with a leaf spring 62 to bias access panel 28 to an open position.

Referring generally to Figures 3 and 3A, movable catch 30 also includes an inner member 64 secured to release switch 32, shown in dashed lines. As best illustrated in Figure 11, inner member 64 is connected to release switch 32 through a hole 66 in chassis 22. Movable catch 30 includes a block portion 68 that extends through hole 66.

Block 68 has a side opening 70 that allows movable catch 30 to travel along a guide member 72 formed in chassis 22.

Block 68 could be disposed on release switch 32 or inner member 64. However, in the illustrated embodiment, block

5 68 is disposed on release switch 32. Chassis 22 also includes two tabs 74 that cooperate with block 68 and guide member 72 to secure a biasing spring 76.

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10 In the illustrated embodiment, inner member 64 includes a raised member 78 having an angled catch portion 80 and a flat catch portion 82. Inner member 64 also includes a hole 84 through which a screw 86 is inserted to secure inner member 64 to release switch 32. As best illustrated in Figure 9, release switch 32 includes a  
15 corresponding threaded hole 88 into which screw 86 is threaded. As best illustrated in Figure 12, inner member 64 includes four guideposts 90 that are configured for insertion into four guide holes 92 in central block 68.

20 Referring again to Figure 3, the illustrated embodiment of raised member 78 includes a second angled catch portion 94 and a second flat catch portion 96. Second angled catch portion 94 and second flat catch

portion 96 are symmetrical about an axis with angled catch portion 80 and flat catch portion 82. The symmetry of inner member 64 allows a single design to be used on opposite sides of chassis 22.

5

In the exemplary embodiment, two movable catches 30 are used to secure access panel 28 to chassis 22. The operation of each movable catch 30, preferably, is identical. Therefore, for clarity the following discussion of the operation of movable catch 30 will refer only to a single movable catch 30.

10

Referring generally to Figures 4 and 4A, as access panel 28 is being closed, angled latch portion 42 of access panel 28 contacts first angled catch portion 80 of inner member 64. In this view, as access panel 28 is pivoted downward, angled latch portion 42 forces inner member 64 to the right, causing spring 76 to be compressed. Angled latch portion 42 of access panel 28 slides along the surface of angled catch portion 80 as it forces inner member 64 to the right.

15

20

Referring generally to Figure 5, access panel 28 eventually pivots to a point where angled latch portion 42 no longer engages angled catch portion 80. When that point is reached, the force of compression in spring 76 pushes  
5 block 68 to the left towards a biased position. The movement of movable catch 30 to the biased position causes flat catch portion 82 to be placed over flat latch portion 44. Flat catch portion 82 blocks movement of flat latch  
10 catches 30 and lip 38 thus cooperate to secure access panel 28 to chassis 22. Additionally, the spring force of leaf spring 62 must be overcome to place access panel 28 in the closed position.

15 Referring generally to Figures 6 and 6A, release switch 32 is operated to displace movable catch 30 from the biased position to gain access to chassis 22. An operator displaces movable catch 30 laterally to remove flat catch  
20 portion 82 from its blocking position over flat latch portion 44. As best illustrated in Figure 6A, the force of leaf spring 62 then forces edge 98 of access panel 28 upward. This makes it easier for an operator to grab access panel 28 and remove it from chassis 22.

Referring generally to Figures 7 and 7A,  
electromagnetic shielding for enclosure 20 is provided by a  
system of ground springs 52 and ground tabs 60. Each tab  
60 on chassis 22 is inserted through a respective hole 50  
5 in support 48 of access panel 28 when access panel 28 is  
installed in a closed position on chassis 22. In the  
illustrated embodiment, ground springs 52 are formed of a  
strip of metal fixed at one end 100 to support 48. Each  
tab 60 contacts a free end 102 of a respective ground  
10 spring 52, thus grounding panel 28 to chassis 22.

Referring generally to Figure 8, a bottom view of  
access panel 28 is featured. Preferably, access panel 28  
is made from a sheet metal. In the illustrated embodiment,  
15 latch 40 and support rails 48 are formed by a series of  
bending operations on the sheet metal of access panel 28.

Referring generally to Figures 9 and 10, front and  
back views of the release switch 32 are illustrated.

20 Figure 9 illustrates the side of catch release 32 facing  
inner member 64. Figure 10 illustrates the side of catch  
release 32 that is visible from the exterior of protective  
enclosure 20. Raised ridges 103 are provided on the outer



surface of release switch 32 to enable an operator to more easily operate release switch 32.

Referring generally to Figure 11, an exterior view is shown of base 22. This view illustrates recessed landing 34, hole 66, and guide member 72.

Referring generally to Figures 12 and 13, front and back views of inner member 64 are illustrated. Figure 12 illustrates the side of inner member 64 that faces catch release 32. Figure 13 illustrates the side of the inner member that faces the interior of enclosure 20.

Referring generally to Figure 14, an alternative embodiment of a chassis 104 is shown. In the illustrated embodiment, chassis 104 is configured so that movable catch 30 is proximate to front bezel 24 so that access panel 28 may be removed from the front of chassis 22, rather than the back.

It will be understood that the foregoing description is of preferred exemplary embodiments of this invention, and that the invention is not limited to the specific forms

shown. For example, elements, such as latch 40 and  
brackets 56 and 58 described as portions of chassis 22 and  
access panel 28, may be formed separately and secured to  
chassis 22 and access panel 28. These and other  
5 modifications may be made in the design and arrangement of  
the elements without departing from the scope of the  
invention as expressed in the appended claims.

CLAIMS

What is claimed is:

1. A protective assembly for a computer system,

5 comprising:

a chassis;

an access panel;

10

a latch member secured to the access panel; and

a catch member moveably secured to the chassis,

the catch member being biased to a first

15

position on the chassis to secure the latch  
member.

2. The system as recited in claim 1, wherein the

20 latch member includes a first engaging portion and a first  
securing portion and the catch member includes a second  
engaging portion and a second securing portion.

3. The system as recited in claim 2, wherein the catch member comprises an inner portion and an outer portion coupled together through a hole in a wall portion of the chassis.

5

4. The system as recited in claim 2, wherein the first engaging portion slidably engages the second engaging portion and displaces the catch member from the first position as the access panel is moved to a closed position on the chassis.

5. The system as recited in claim 4, wherein at the closed position, the first engaging portion and the second engaging portion are no longer in sliding engagement and the catch member is biased back to the first position.

6. The system as recited in claim 5, wherein the second securing portion is disposed over the first securing portion when the catch member is in the first position.

7. The system as recited in claim 6, wherein the first securing portion and the second securing portion are flat.

5

8. The system as recited in claim 6, wherein the first engaging portion and the second engaging portion are angled.

10

9. The system as recited in claim 7, wherein the latch member is released from the catch member by displacing the catch member so that the second securing portion is not disposed over the first securing portion.

15

10. The system as recited in claim 1, wherein the catch member is biased by a spring.

20

11. The system as recited in claim 2, wherein the catch member includes a third engaging portion and a third securing portion symmetrical about an axis with the second engaging portion and the second securing portion.

5

12. The system as recited in claim 2, wherein the first engaging portion and the second engaging portion are configured for sliding engagement.

10

13. The system as recited in claim 2, wherein the first securing portion and the second securing portion are configured for abutment.

15

14. The system as recited in claim 2, wherein the access panel is pivoted about a first end to dispose the access panel on the chassis.

20

15. The system as recited in claim 1, comprising a spring to bias the access panel to an open position.

16. A securing member for a movable securing system,  
the movable securing system securing an access panel to a  
chassis, the access panel having a latch extending  
therefrom, the securing member comprising:

5

a first surface configured for sliding engagement  
with the latch as the access panel is  
pivoted towards a closed position on the  
chassis; and

10

a second surface configured to restrict movement  
of the latch when the access panel is  
disposed in the closed position on the  
chassis.

15

17. The first member as recited in claim 16, wherein  
the first surface is angled.

20

18. The first member as recited in claim 17, wherein  
the second surface is generally flat.

19. The first member as recited in claim 18, the  
first member further comprising a third surface and a  
fourth surface, the third surface and fourth surface being  
oriented symmetrically about an axis with the first surface  
5 and second surface.

20. A method of securing an access panel having a  
latch member to a chassis having a moveable catch member  
10 biased to a first position on the chassis, comprising:

pivoting a first end of the access panel towards  
a closed position on the chassis;

15 displacing the moveable catch member from the  
first position with the latch member; and

disposing the access panel in the closed position  
on the chassis, wherein the moveable catch  
20 member is no longer displaced by the latch  
member and is biased back to the first  
position, thereby securing the latch member.



21. The method as recited in claim 20, further  
comprising:

providing a biasing element to bias the access  
5 panel towards an open position on the  
chassis.

22. The method as recited in claim 21, wherein  
10 providing includes displacing the access panel by the  
biasing element to an open position on the chassis when the  
moveable catch member is moved to a second position on the  
chassis, thereby releasing the latch member.

23. The method as recited in claim 20, further  
comprising:

configuring the latch member and moveable catch  
20 member for sliding engagement as the access  
panel is pivoted towards the closed  
position.

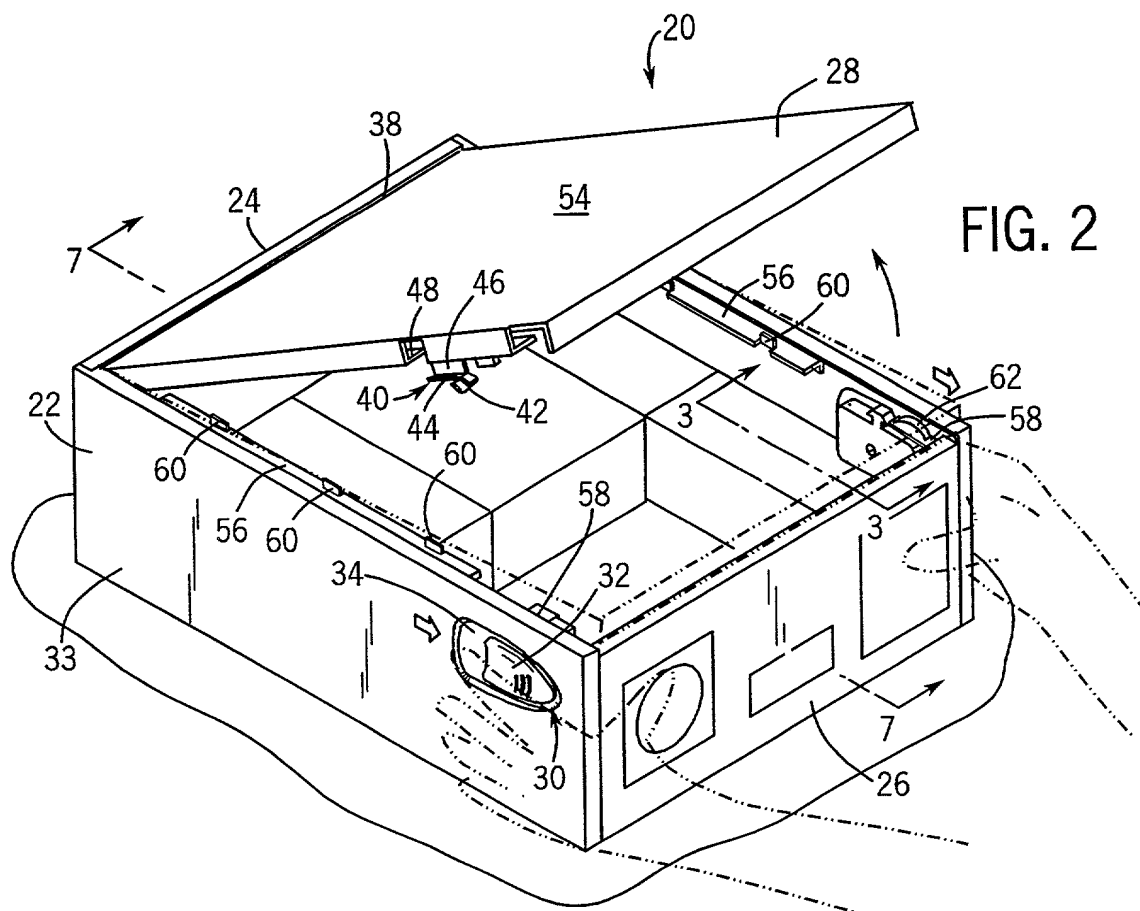
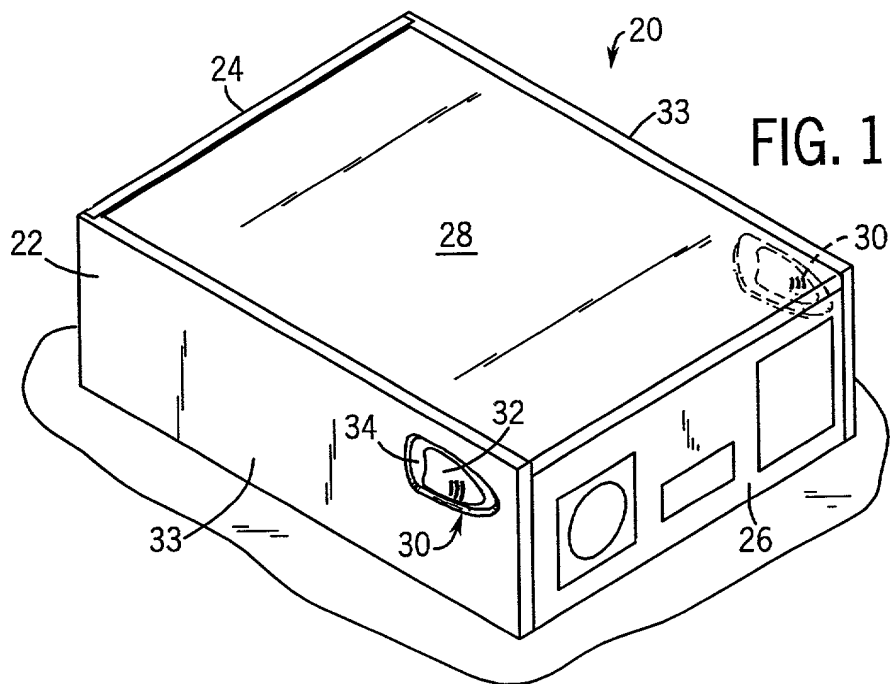
24. The method as recited in claim 23, further  
comprising:

configuring the latch member and moveable catch  
member for abutment when the moveable catch  
member is biased back to the first position.

5

ABSTRACT OF THE DISCLOSURE

A protective assembly for electronic components. The protective assembly has a chassis and a removable cover. The removable cover is secured to the chassis by a latch and a catch. The catch is biased by a spring to a first position. The latch slidably engages the catch to displace the catch during the installation of the cover. The spring returning the catch to the first position when the cover is disposed on the chassis in the securing position. The panel being removeable by sliding the catch against the spring to release the latch from the catch.



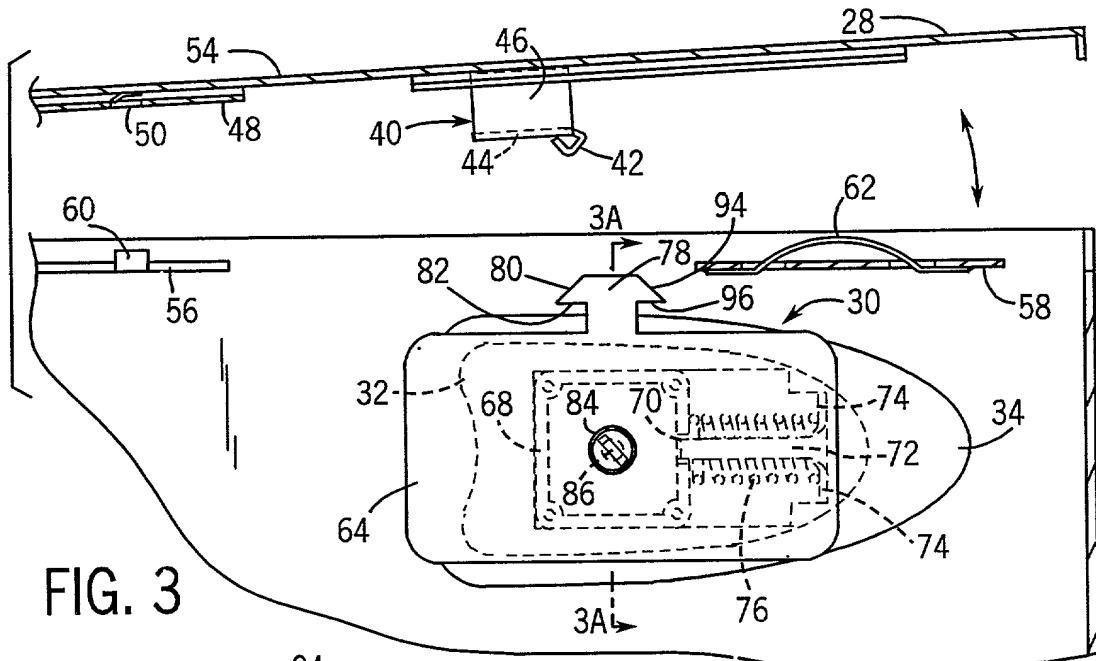


FIG. 3

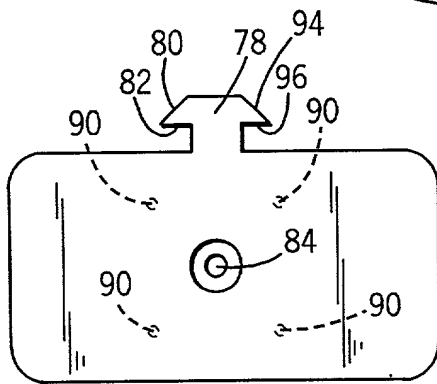


FIG. 13

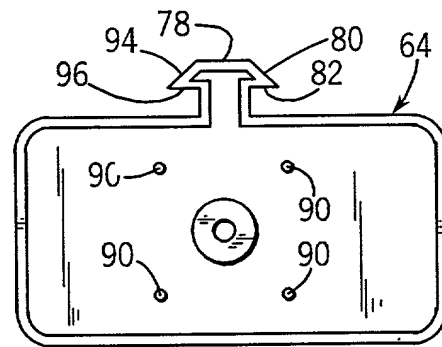


FIG. 12

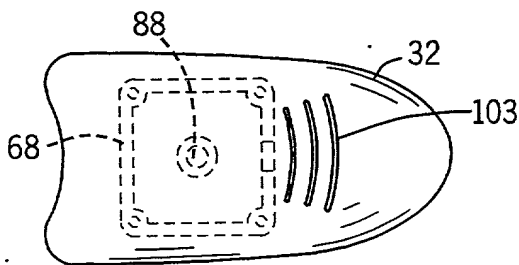


FIG. 10

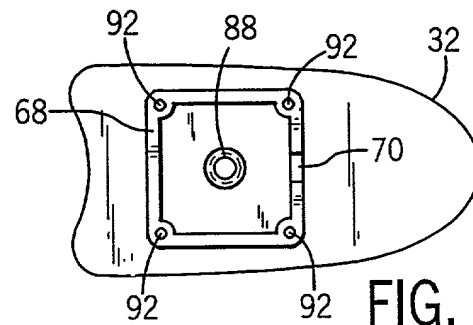


FIG. 9

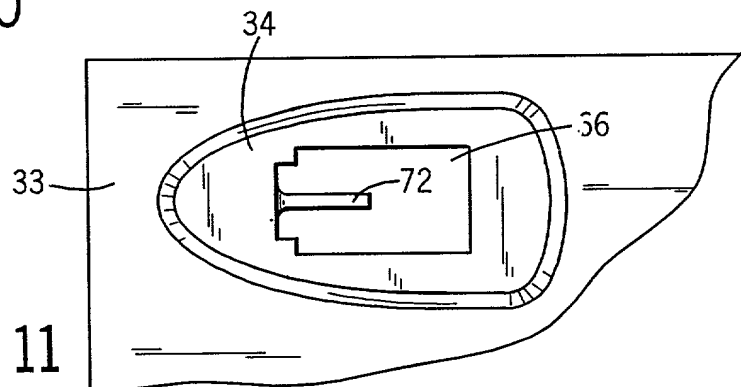
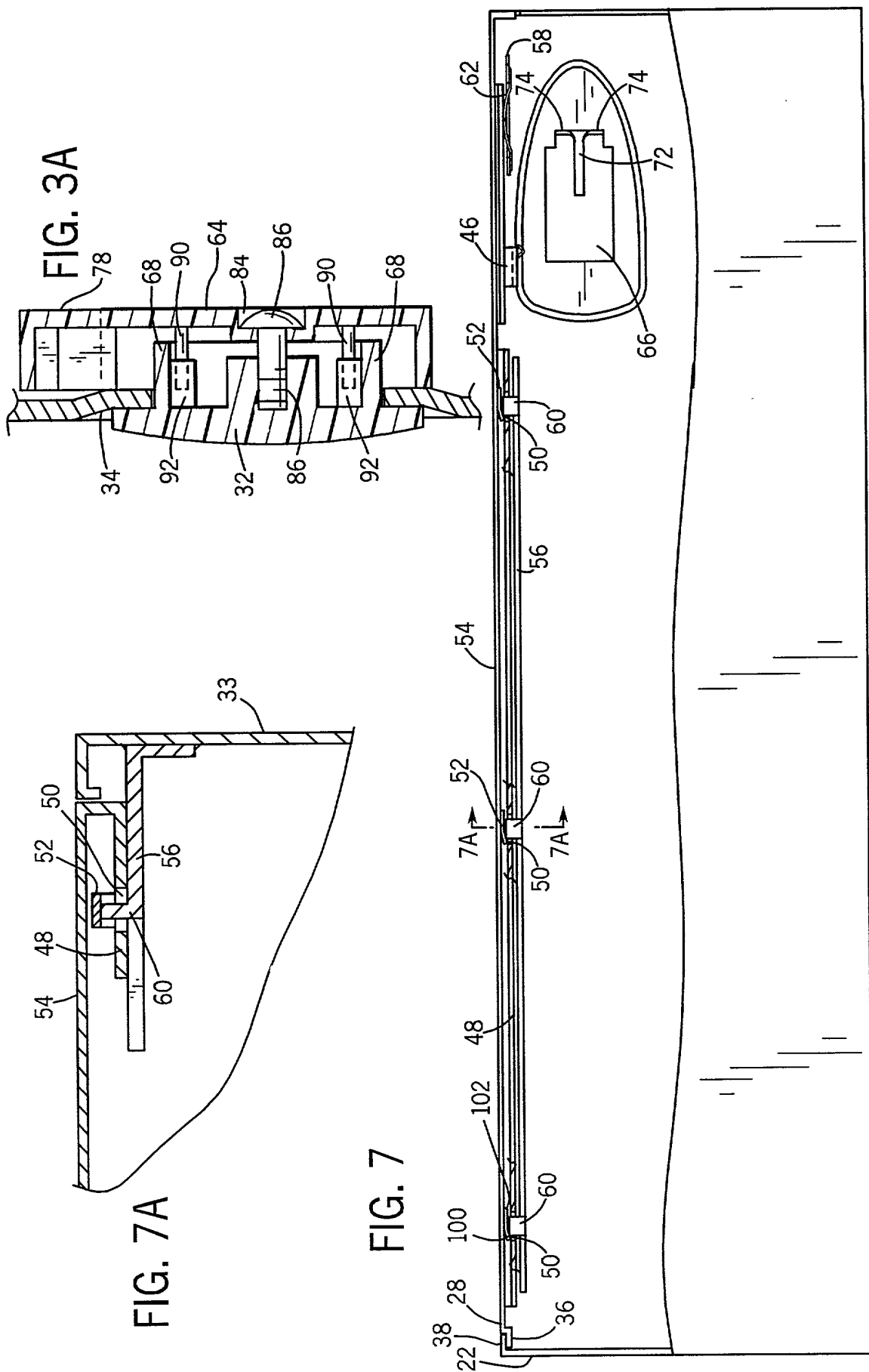


FIG. 11





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FIG. 8

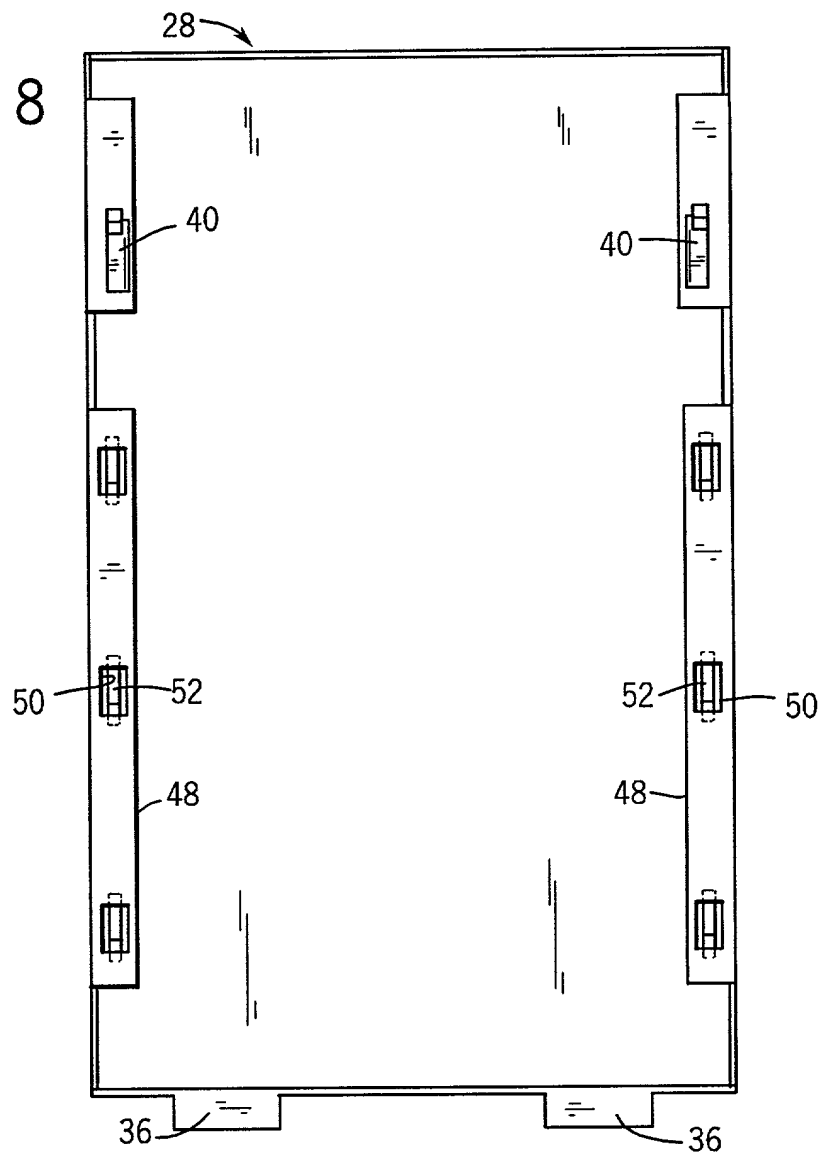
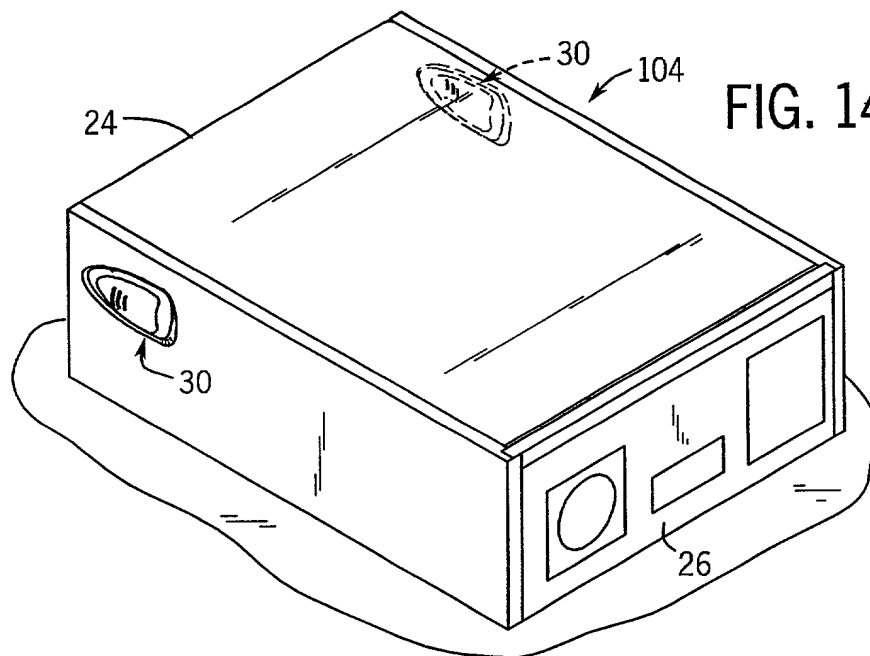


FIG. 14





**DECLARATION****SOLE/JOINT INVENTOR  
ORIGINAL/SUBSTITUTE/CIP**

As a below named inventor, I hereby declare that: my residence, post office address, and citizenship are as stated below next to my name. I believe I am the original, first, and sole inventor (if only one name is listed below) or a joint inventor (if plural inventors are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**ACCESS PANEL LATCHING SYSTEM**

as described in the specification ☒ attached or ☐ of patent Application Serial No. \_\_\_\_\_

filed \_\_\_\_\_ and amended on \_\_\_\_\_

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above; that I do not know and do not believe the same was ever known or used in the United States of America before my or our invention thereof, or patented or described in any printed publication in any country before my or our invention thereof or more than one year prior to this application; that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representative or assigns more than twelve months prior to this application; and that I acknowledge the duty to disclose information of which I am aware which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations § 1.56(a). Such information is material when it is not cumulative to information already of record or being made of record in the application, and



- (1) it establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or
- (2) it refutes, or is inconsistent with, a position the applicant has taken or may take in:
  - (i) opposing an argument of unpatentability relied on by the Office, or
  - (ii) asserting an argument of patentability

I hereby claim foreign priority benefits under Title 35, United States Code § 119 of any foreign application(s) for patent or inventor's certificates listed below and have also identified below any foreign application(s) having a filing date before that of the application(s) on which priority is claimed:

COUNTRY	APPLICATION NUMBER	DATE OF FILING	PRIORITY CLAIMED UNDER 35 USC 119
			<input type="checkbox"/> YES <input type="checkbox"/> NO

I hereby claim the benefit under Title 35 United States Code § 120 of any United States application(s) listed below and, insofar as any subject matter of any claim of this application is not disclosed in the prior United States Application, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations § 1.56(a) which occurred between the filing date of the prior application and the national PCT international filing date of this application:

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon

FULL NAME OF SOLE OR FIRST INVENTOR <b>Arthur K. Farnsworth</b>	INVENTOR'S SIGNATURE 	DATE <b>11-15-00</b>
RESIDENCE <b>15915 Lausanne Drive, Houston, Texas 77070, U.S.A.</b>		CITIZENSHIP <b>U.S.A.</b>
POST OFFICE ADDRESS <b>15915 Lausanne Drive, Houston, Texas 77070, U.S.A.</b>		
FULL NAME OF SECOND JOINT INVENTOR <b>Peter W. Austin</b>	INVENTOR'S SIGNATURE 	DATE <b>11-15-00</b>
RESIDENCE <b>8738 Desert Palms Drive, Spring, Texas 77379, U.S.A.</b>		CITIZENSHIP <b>U.S.A.</b>
POST OFFICE ADDRESS <b>8738 Desert Palms Drive, Spring, Texas 77379, U.S.A.</b>		

Diane Strong  
Administrator, Patents  
Authorized To Sign This Document On Behalf Of  
Compaq Computer Corporation  
Pursuant To Board Of Directors Resolution  
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